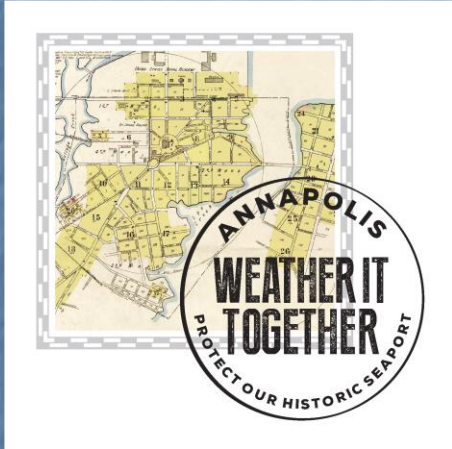


# ANNAPOLIS

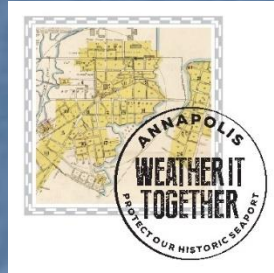
## WEATHER IT TOGETHER

*Planning for the Protection of Our Historic Seaport*



# ***WEATHER IT TOGETHER: Protecting Our Historic Seaport A Town Hall***

Sponsored by the City of Annapolis  
Hosted by the Annapolis Waterfront Marriott



**Thanks to Our Weather It Together Program Sponsors!**

Maryland Department of Natural Resources

Maryland Historical Trust

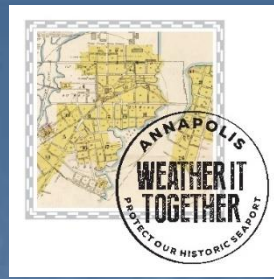
MainStreets Annapolis Partnership

National Oceanic and Atmospheric Administration

National Trust for Historic Preservation

US Army Corps of Engineers





# Weather It Together Exhibitors

City of Annapolis

**Planning & Zoning**

**Office of Emergency Management**

**Neighborhood & Environmental Programs**

**Maryland Emergency Management Agency**

Maryland Department of Natural Resources

Maryland Office of Planning / Maryland Historical Trust

United States Naval Academy

National Park Service

Union of Concerned Scientists

MainStreets Annapolis Partnership

Historic Annapolis

National Trust for Historic Preservation

US Army Corps of Engineers

# *Union of Concerned Scientists*

## Sea Level Rise & Tidal Flooding

### Encroaching Tides

*How Sea Level Rise and Tidal Flooding Threaten U.S. East and Gulf Coast Communities over the Next 30 Years*



By 2030, more than half of the 52 communities studied are projected to experience, on average, at least 24 tidal floods per year in exposed areas, assuming moderate sea level rise projections. Twenty of these communities could see a tripling or more in tidal flooding events.

The mid-Atlantic coast is expected to see some of the greatest increases in flood frequency. Places such as Annapolis, Maryland and Washington, DC can expect more than 150 tidal floods a year, and several locations in New Jersey could see 80 tidal floods or more.

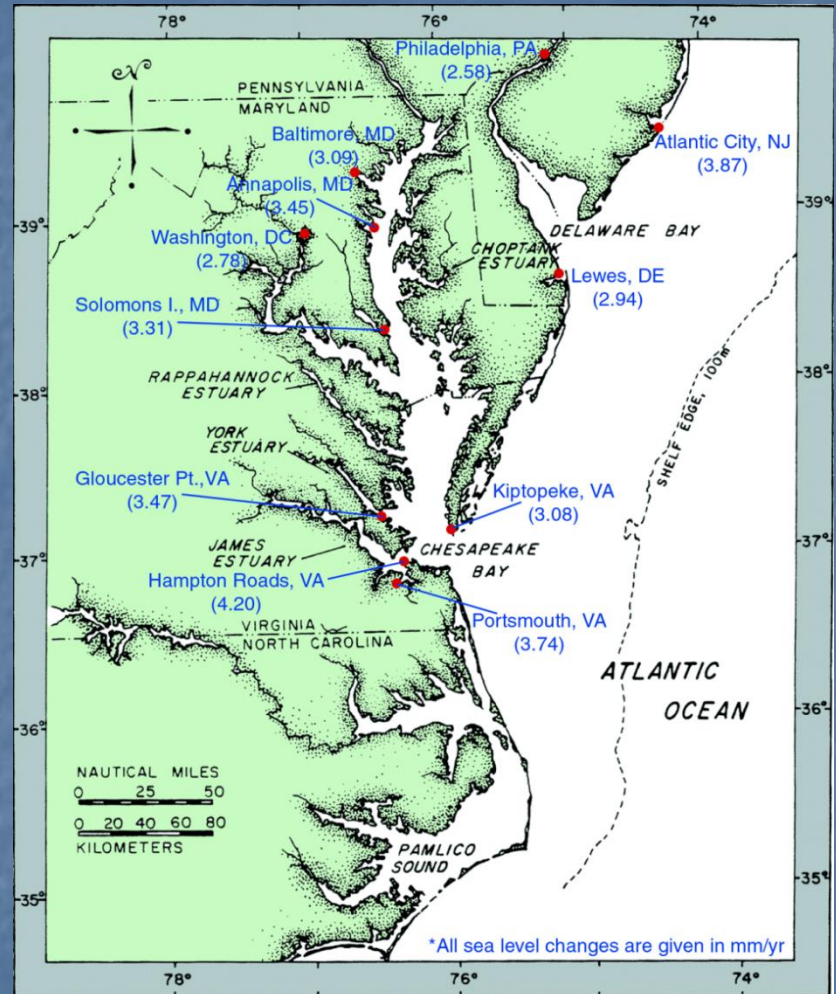
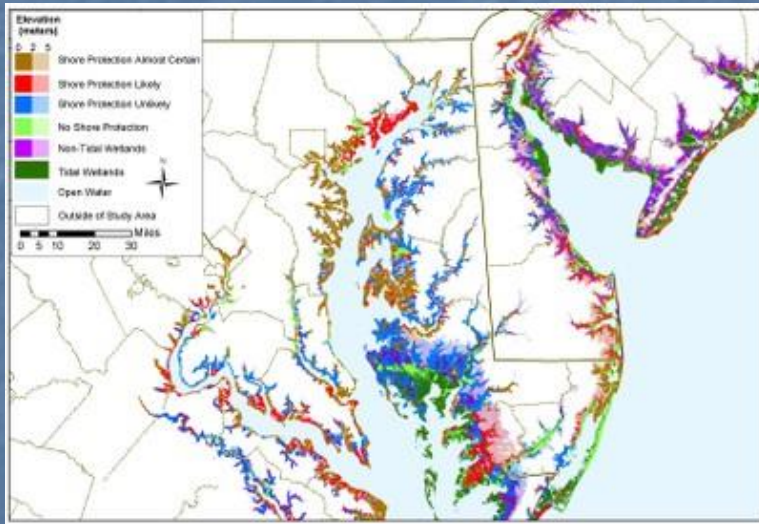
As sea level rises, many tidal flooding events will shift from being minor to more extensive, with accompanying increases in

**Tidal flooding in 2045: From chronic to incessant**



# Sea Level Rise

## The Chesapeake Watershed



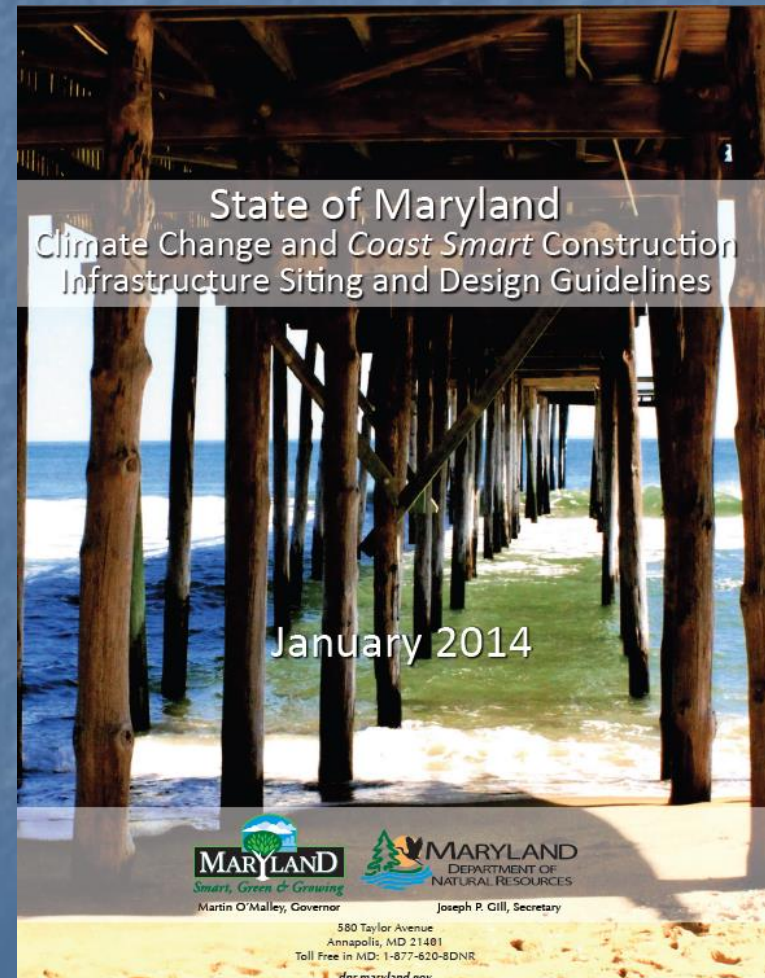
Within the next 100 years, sea level rise is estimated to reach 44 inches. To date, 13 islands have been lost.

# *Regulatory Response*

## **Maryland Climate Change & Coast Smart Construction**

“Measures should be applied to non-State structure or infrastructure projects if partially or fully funded by State agencies...”

“Exceptions should be based on an analysis of the scope, function and importance of the project, including historic and cultural preservation considerations.”





# *Regulatory Response*

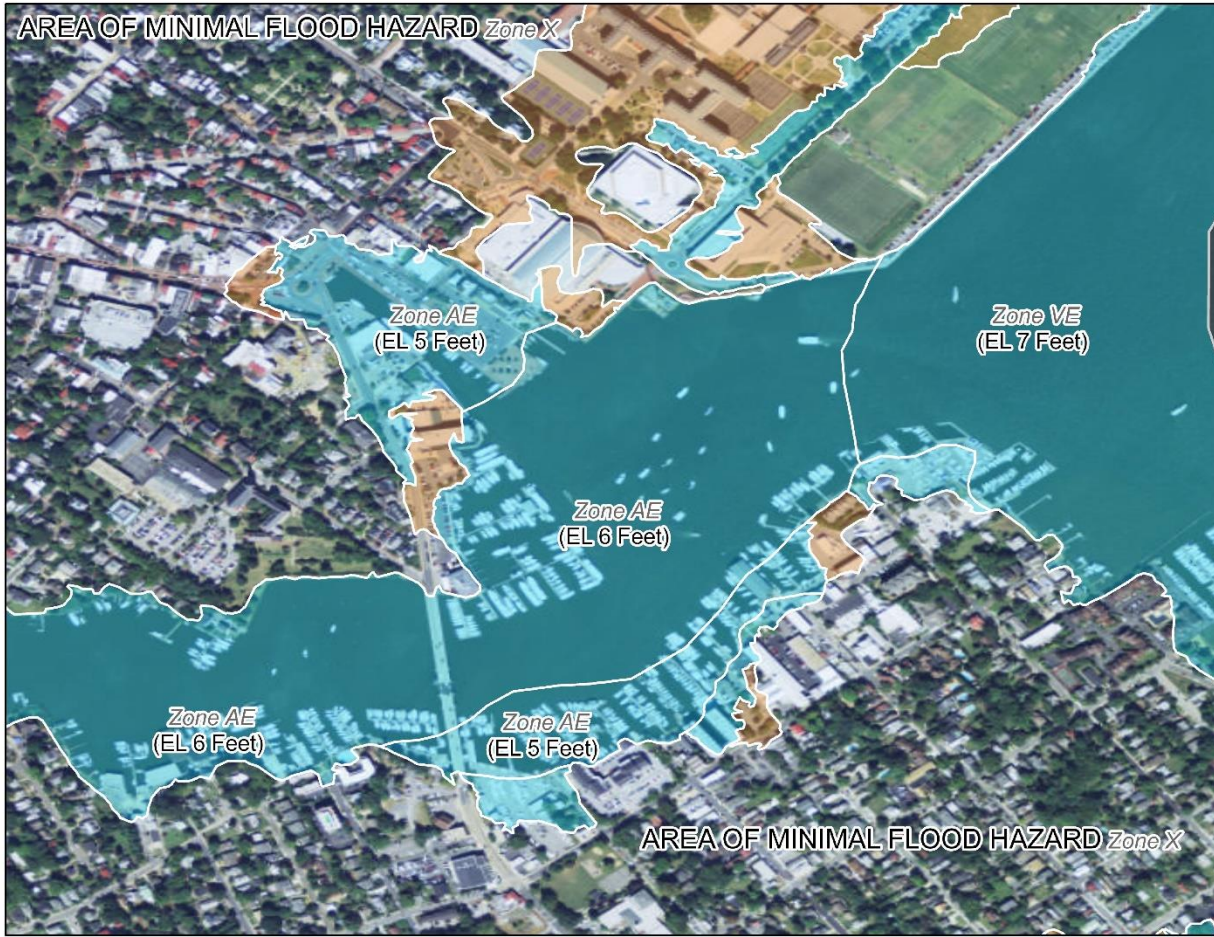
## City of Annapolis Flood Mitigation

- Focus on protecting existing structures and infrastructure
- Study downtown to determine the costs and benefits of public decision-making in mitigating property damage
- Evaluate the need and options for protecting historic structures
- Require floodproofing to the extent feasible



# Regulatory Response

## Annapolis Flood Plain Mapping



### FEMA FIRM

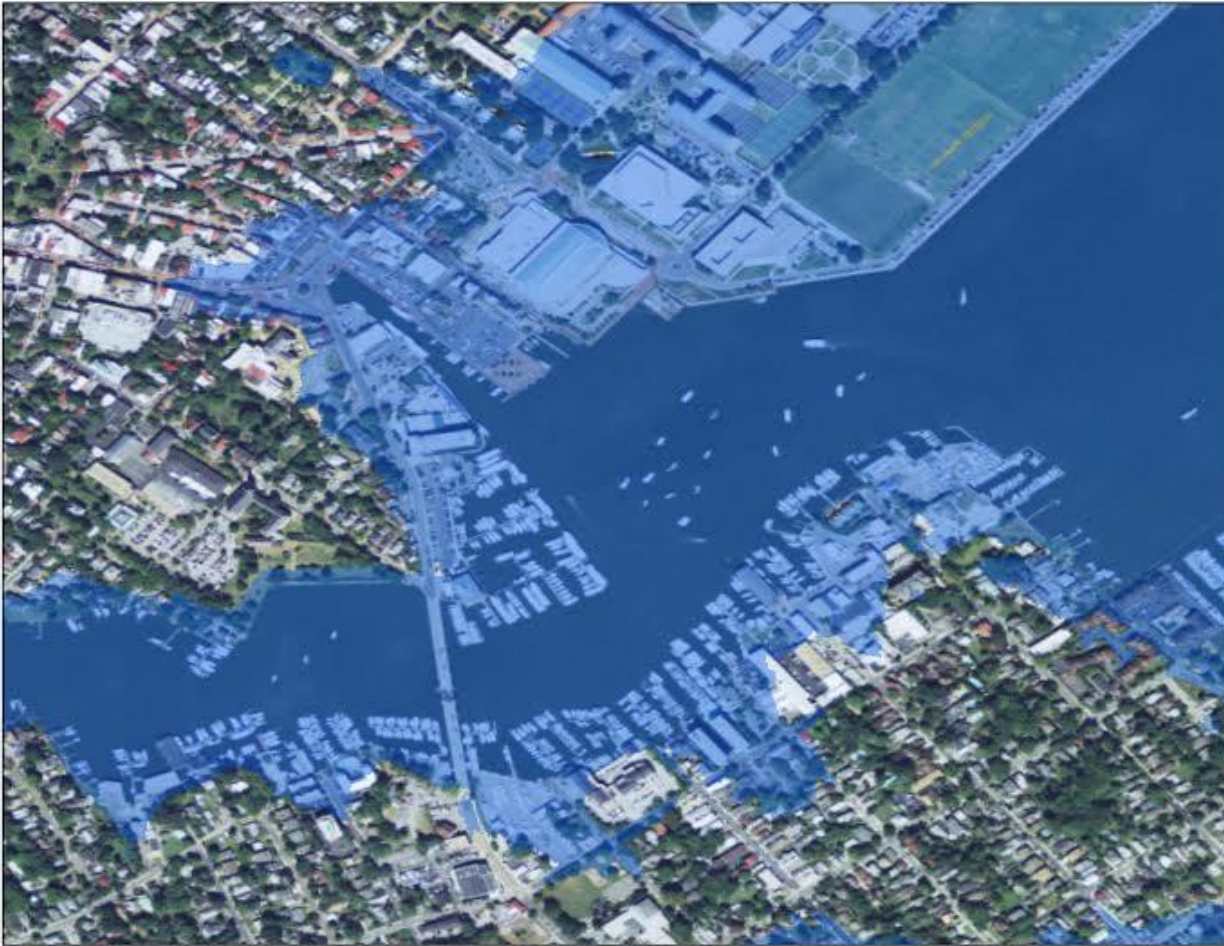
(Flood Insurance  
Rate Map - 2015)

- Blue shading is 1% annual chance (100-year) flood
- Orange shading is 0.2% annual chance (500-yr) flood (Stillwater elevation 6' NAVD88)



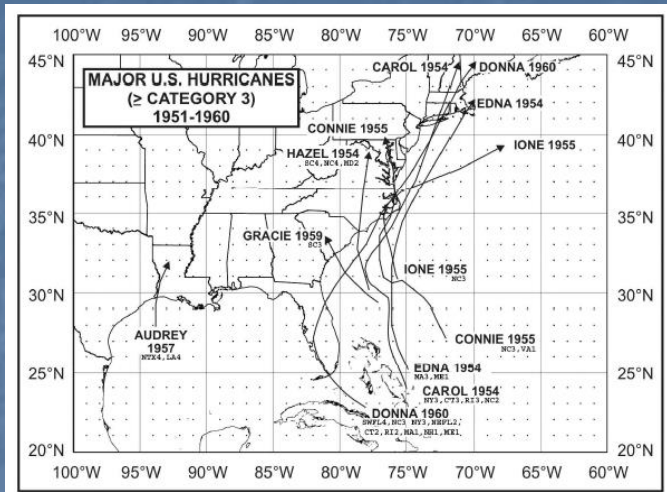
# *Regulatory Response*

## **Annapolis Flood Plain Mapping**



- Flood elevation 8.2 feet (NAVD88)
- 1% annual chance flood (4.5') plus 3.7 feet for sea level rise by the year 2100 (MD SLR report)

# Annapolis Storm History



**1667 (Sept. 6)** – *“Year of the Hurricane.”* Severe storm tracked through the Chesapeake. A benchmark storm for generations.

**1775 (Sept. 2-3)** – Hurricane claims State House roof, which is then replaced by a hurricane resistant dome.

**1915 (Aug. 3)** - Tropical storm tracked through central Maryland. In Annapolis, worst storm in years.

**1955 (Aug. 12 & Aug. 18)** - *Hurricanes Connie & Diane.* Winds from Connie sunk the tour schooner *Levin J. Marvel* outside of Annapolis. 14 drowned.



# Storm History: Isabel

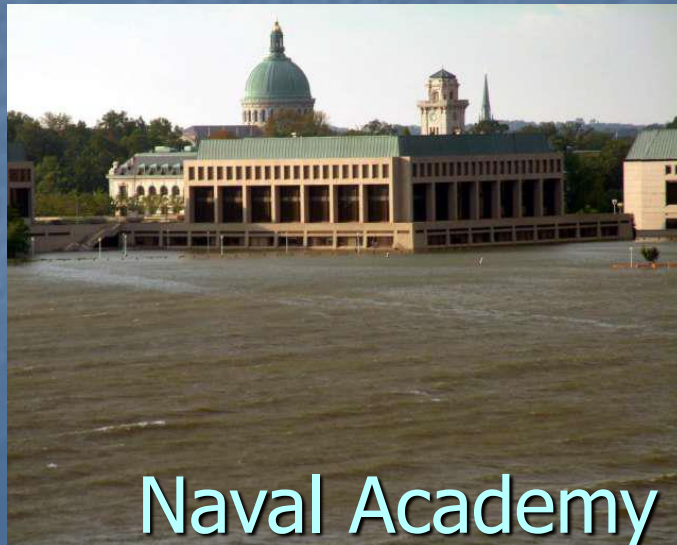
## September 19, 2003



Market Space



Main Street



Naval Academy



Eastport

# *Planning Documents*

## **Annapolis City Dock Master Plan**

### **Annapolis City Dock Master Plan**

A Framework to Guide Improvements & Redevelopment



October 2013



“...the historic built environment of City Dock [is] threatened by sea level rise. In conjunction with the development of a Hazard Mitigation Plan to protect historic resources within the 100-year flood plain that is currently underway, the City will explore and present to the City Council for consideration several strategies for addressing the 100-year flood and sea level rise...”



# ***FEMA Hazard Mitigation Planning***



## **Integrating Historic Property and Cultural Resource Considerations Into Hazard Mitigation Planning**

**State and Local Mitigation Planning How-To Guide**

FEMA 386-6 / May 2005




Hazard mitigation planning is the process of determining how to reduce or eliminate the loss of life and property damage resulting from natural and manmade hazards.

Process includes:

- Organizing your efforts to develop an effective mitigation plan;
- Identifying hazards and assessing losses to your community;
- Setting mitigation priorities and goals and writing the plan;
- Implementing the mitigation plan, including project funding.

# FEMA Hazard Mitigation Planning

## Organize Resources: Funding & Partners



### 1 organize resources

#### Overview


Organizing resources to consider historic properties and cultural resources in the hazard mitigation planning process involves identifying and assembling the necessary technical information, funding, staff, and political and public support. The process cannot progress—much less succeed—without the marshaling of these resources.

The three steps discussed in this section to integrate historic properties and cultural resources in to the hazard mitigation plan supplement the guidance provided in FEMA 386-1, *Getting Started: Building Support for Mitigation Planning*. These steps are described below:

**Step 1.** This step entails assessing the level of awareness and support for protecting these assets. This step also involves identifying resources for hazard mitigation related to historic properties and cultural resources.

**Step 2.** This step focuses on identifying and recruiting historic preservation and cultural resource experts to join the planning team; should such expertise not already be represented by team members.

**Step 3.** This section offers advice and on how to effectively engage the public in the hazard mitigation process.



**Historic Preservation Element in Comprehensive Plans**

Comprehensive plans provide a framework for regulating the built environment. State regulations define the elements that a plan must contain. These elements typically include:

- Future land use element;
- Housing element;
- Economic development element;
- Capital improvement element;
- Transportation element; and
- Conservation element.

The policies in the comprehensive plan are intended to minimize incompatible use, avoid urban sprawl, provide for adequate infrastructure facilities, prevent damage or disruption to natural resources, and preserve the character of the community. These policies and their related goals and objectives provide a vision for the community's future. The conservation element typically encompasses the protection of natural resources as well as historic properties and cultural resources. This element includes an analysis of the effects of future land use on historic properties and cultural resources and policies, goals, and objectives for preserving these resources. This element will also discuss local mechanisms such as Historic Preservation Commissions that designate and protect historic properties and cultural resources under jurisdictional zoning authority.

At the completion of this phase, you should have a clear picture of the community's level of support for historic preservation. In addition, you should have identified a team of experts and information, team members should have been identified, and a public outreach campaign should have been initiated.

Version 1.0 May 2005

### Secured Funding to Date

- \$175,000 – National Trust, Preservation Maryland, USACE (In-Kind), MHT, DNR / NOAA
- Core Team
  - OEM, P&Z, DNEP, DPW, MIT
  - MEMA, DNR, MHT
  - USNA, FEMA, USACE
  - National Trust for Historic Preservation, Preservation Maryland, Historic Annapolis
  - MAP, WORA, ECA
  - Preservation Architect, Local Historians, Interns



# *FEMA Hazard Mitigation Planning*

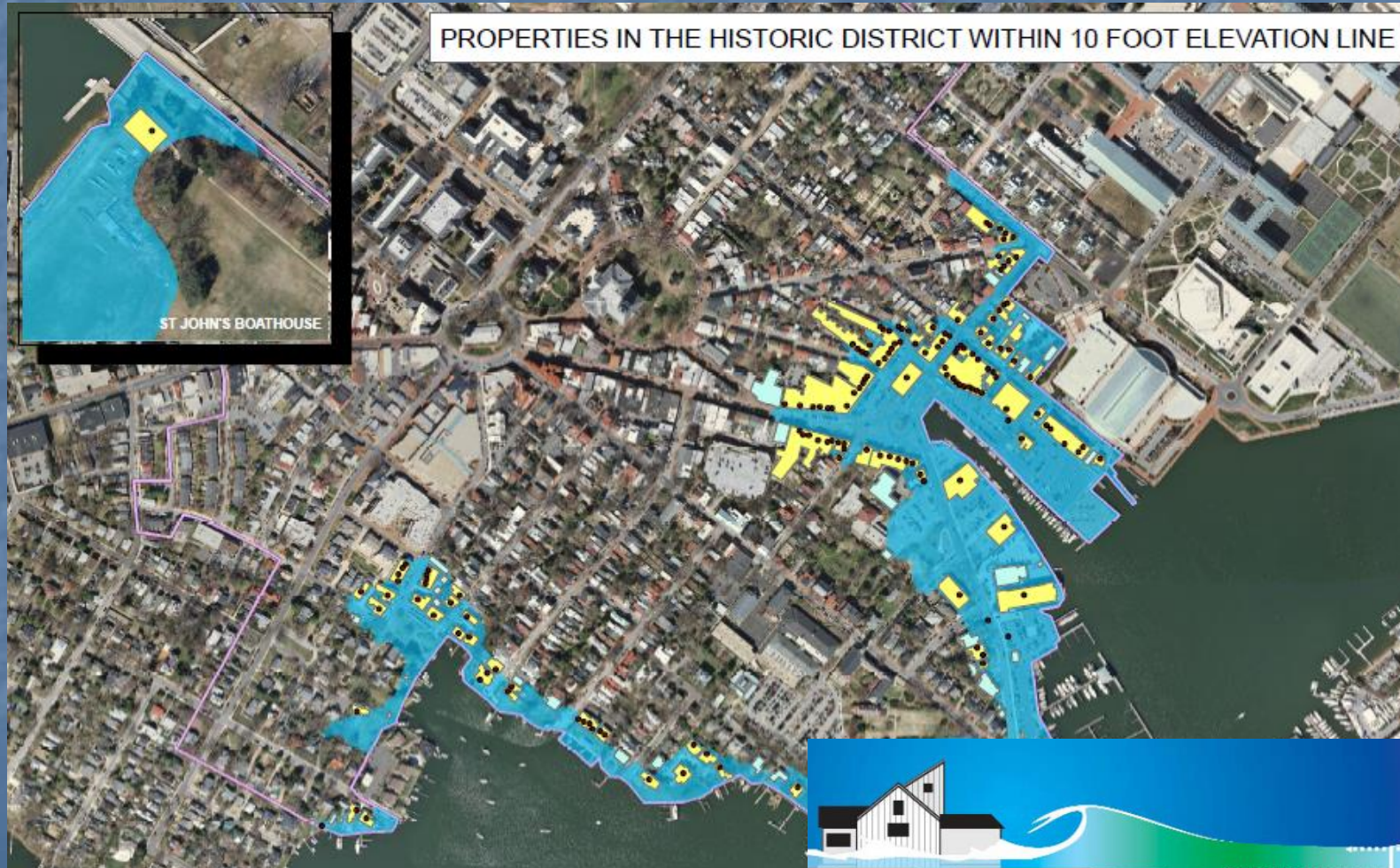
## Cultural Resource Inventory





# *FEMA Hazard Mitigation Planning*

## GIS Data Point Mapping



MEAN SEA LEVEL








15-FT. STORM SURGE

17-FT. STORM TIDE

2-FT. NORMAL HIGH TIDE



# FEMA Hazard Mitigation Planning Cultural Resource Inventory

A	B	C	D	E	F	G	H	I	J	K	L	M
		SDAT Tax ID Number	HAZARD: Coastal Name and Address of Asset Subject to Hazard (same as previous Page)	MHT Inventory Number (AA#)	Date of Construct ion	Type of Property / Type of Resource	Total Square Footage	Number of Stories	Structural System	Primary Exterior Materials of Property	Current Function / Use	Current Condition (Excellent / Good / Fair)
1		06 000 00030807	1 Southgate Avenue	1450	1910 - 1915	Detached House	4901					
2		06 000 05035575	12 Fleet Street	1267	1875	Attached House / Duplex	840					
3		06 000 00143206	9 Pinkney Street	1241	1880	Attached House / Rowhouse	1336					
4		06 000 03587510	18 Pinkney Street / Shiplap House	643	1713 / 1723	Detached House / Historic	2255					
5		06 000 02047510	130 Prince George Street / Sands House	652	1739 / 1765	Detached House	2740					
6		06 000 07808800	142 Dock Street / Stevens Hardware	458	1880	Attached Comm Bldg	5720					
7		06 000 02423500	100 Main Street / A.L. Goodman	536	1908 - 13	Attached Comm Bldg	7354					

## Worksheet #3

- Name/Address of Resource
- Date of Construction
- Type of Property
- Square Footage
- Structural System
- Primary Materials
- Current Function
- Current Condition
- Owner Interest in Mitigation

# FEMA Hazard Mitigation Planning

## Cultural Resource Inventory

A	Column 1	Column 2	Column 3	Column 4	Column 5	Column 6	Column 7	Column 8	Column 9
MHT INVEN. A#	Name and Address of Asset Subject to Hazard	Date of Construction Creation	Type of Property/ Type of Resource	Square Footage	Structural System	Primary Material(s) of Property/ Resource	Current Function/Use	Current Condition	Is Owner interested in Mitigation? (Yes/No)
1450	1 SOUTHWATER AVE	1910 1915	RESIDENTIAL DETACHED HOUSE	4901	WOOD FR STONE	WOOD STONE	RESIDENCE SFD		
1267	12 FREET ST.	1875 1885-1889	ATTACHED HOUSE	840	WOOD FRAME	WOOD SIDING	RESIDENCE SFD		
1241	9 PINKNEY	1880	ATTACHED HOUSE	1934	WOOD FRAME	WOOD SIDING	RES SFD		
6043	SHUPLAP HOUSE 18 PINKNEY	1715 1723-24	DETACHED HOUSE	2,155	WOOD FRAMING POST/BEAM	BRICK WOOD SIDING SHINGLES	INSTIT. OFFICES		
6092	7800 HOUSE 100 PRINCE CORPORATE	1765 1759-1914	DETACHED HOUSE	2,120	WOOD FRAME	WOOD SIDING METAL DOOR	RESIDENCE SFD		
458	STOVING MACHINERY 142 DOCK ST	1880 1940	ATTACHED COMMERCIAL BUD	5,720	MAS BRK WALL & WOOD FRAMING	BRICK METAL GLASS	COMMERCIAL		
534	A.L. GOODMAN 100 MAIN ST. (-04)	1908-19	COMMERCIAL BUD ATTACHED	7,954	MAS BRK WALL STONE & FRAMING	BRICK METAL GLASS	COMMERCIAL		
535	CUSTOMS HOUSE SIGN OF THE WHEEL 97 (89) MAIN ST	1792-19	COMMERCIAL BUD ATTACHED	3,803	MAS BRK WALL WOOD FRAMING	BRICK	INSTIT MUSEUM STORE		
-	AMERICAN YACHT CLUBS 0 COMPTON ST.	1908-19	COMMERCIAL BUD DETACHED	16,838	METAL FRAMING	WOOD	PRIVATE CLUB		
532	77 MAIN ST.	1790	COMM INSTR. RETAIL	-	MAS BRK WALL WOOD FRAMING	BRICK WOOD	INSTIT MUSEUM STORE		

Hazard:  
Worksheet #3

### Worksheet #3 (cont.)

- Property Vulnerability (High, Med. Low)
- Loss to Structure (\$)
- Loss to Contents (\$)
- Loss of Function / Use (\$)
- Displacement Cost
- Total Loss for Hazard Event

**55,155,554**

\* SDAT  
\*<sup>2</sup> SDAT / MHT

step 3  
2



# FEMA Hazard Mitigation Planning

## Assess Risks

List the name and address of vulnerable historic properties and cultural assets. For each asset (row), fill in Columns 1 to 6. Define High, Medium, and Low for Columns 3, 4, 5, 6, and 7 at the bottom of this worksheet (optional). Fill in Column 7 by qualitatively adding Columns 3 to 6. Enter the results of Column 7 in Column 16 of Worksheet #3.

Name and Address of Asset	Column 1 Historic Designation (National Register, Local Landmark, etc.)*	Column 2 Geographic Context of Significance (National, Tribal, State, Local)	Column 3 Level of Significance (High, Medium, Low)	Column 4 Public Sentiment (High, Medium, Low)	Column 5 Economic Importance (High, Medium, Low)	Column 6 Degree of Integrity (High, Medium, Low)	Column 7 Total Level of Community Value (High, Medium, Low)
ANNAPOLIS - JONAS GARDEN THEATRE 123 COMPROMISE	NR / AHD	LOCAL					
GIBSONS LODGING 110 PR. QUOTE	NR / AHD	STATE					
MIDDLETONS TAVN 2 MARKET ST	NR / AHD	STATE					
PASTORS ROW 24 MARKET ST	NR / AHD	LOCAL					
16 REVUE ST	NR / AHD	LOCAL					
TOBACCO PRESS WATERFRONT MARKET 2 (4) PINKNEY	NR / AHD ? INDEN	NATIONAL					
REPAIRING WARE BEHIND 71 MAIN 2143 COMPROMISE							
BENEFICIAL HOPSON BOOTHOUSE ST. JOHN'S 1 DOCK ST HARBOURVIEW							
136 MAIN ST.							

\*The designation level does not automatically correlate to the level of community value for n

Date: \_\_\_\_\_  
Worksheet #4  
Determine Community Value and Condition

### Cultural Resource Inventory / Worksheet #4

- Historic Designation (NR, Local)
- Geographic Context of Significance (National, State, Local)
- Level of Significance (High, Med., Low)
- Public Sentiment (H/M/L)
- Economic Importance (H/M/L)
- Degree of Integrity (H/M/L)
- Total Level of Community Value (H/M/L)

# *FEMA Hazard Mitigation Planning*

## *Private Property - Flood Mitigation*

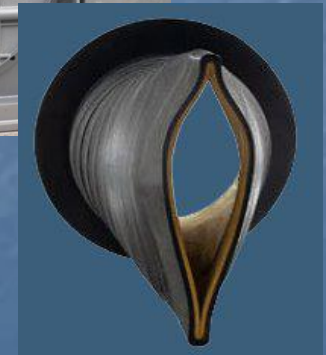




# ***FEMA Hazard Mitigation Planning***

## **Public Infrastructure Protection**

- City Dock flood protection measures limited due to majority of land being privately owned.
- Shared responsibility with the Naval Academy for protecting 4,500 linear feet of shoreline adjacent to the Academy.
- Backflow preventers need to be installed at each sewer connection.
- Floodwalls, coffer dams, pumping station, temporary pumps, backflow preventers, flap valves and duckbill valves needed.



# *FEMA Hazard Mitigation Planning*

## *A Model Program*



### Integrating Historic Property and Cultural Resource Considerations Into Hazard Mitigation Planning

State and Local Mitigation Planning How-To Guide

FEMA 386-6 / May 2005



Connect Improve Update Strengthen Collaborate

### PreserveMaryland

Maryland Preservation Plan 2014



Maryland Historical Trust  
<http://mht.maryland.gov>

“MHT is funding the project in part so that we can use it as a model for other communities throughout the state that have cultural resources threatened by sea-level rise.”



Crisfield, Somerset County MD



# City of Annapolis

## Cultural Resource Hazard Mitigation Plan

### Annapolis: A National Treasure



National Trust for Historic Preservation  
**National Treasures**  
People Saving Places

Suggest a National Treasure | Who We Are | National Trust

Discover ▾ | Contribute

»

**Discover / ANNAPOLIS**  
Save a National Treasure

REGION: South  
LOCATION: Annapolis, MD  
TYPE: Community

CAMPAIGN HOME | UPDATES | SHARE YOUR STORY








Photo by Amy E. McGovern



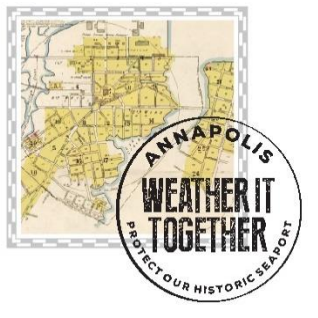
**CAMPAIGN OVERVIEW**  
Threat:  
  
Support the Trust's Work  
**Contribute Now**  
Learn about other [ways to help](#)

**SHARE THIS CAMPAIGN**  


**PRESENTING PARTNER**

Weather It Together: Protect Our Historic Seaport

[www.Annapolis.gov](http://www.Annapolis.gov) / WeatherItTogether



# Visual Preference Survey

*Weather It Together: Protecting Our Historic Seaport* is a multi-agency initiative of the City of Annapolis and Mayor Michael Pantelides to develop a plan and implementation strategy which will reduce the risk of damage or loss to private and public properties most vulnerable to the impacts of climate change. Thank you for participating in this visual preference survey. *Please take a few minutes to complete the survey and enter yourself into a drawing for prizes from our sponsoring businesses:*

- ❖ *Annapolis Marriott Waterfront (One-night stay)*
- ❖ *Annapolis Summer Garden Theater (two show tickets)*
  - ❖ *Federal House (\$25 gift certificate)*
- ❖ *Historic Annapolis Museum Store (\$25 gift certificate)*
- ❖ *Mills Fine Wine & Spirits (a bottle of Champagne)*





# Visual Preference Survey



Rate the places that **matter most to you** in your experience of the Annapolis historic district.  
**1 (most important) to 12 (least important)**



☐ Historic Buildings

☐ Maritime Vessels



☐ Market House



☐ Kunta Kinte – Alex Haley Memorial



# Visual Preference Survey



Rate the places that **matter most to you** in your experience of the Annapolis historic district.  
**1 (most important) to 12 (least important)**



☐ Market Slip (Ego Alley) – City Dock

☐ Susan Campbell Park – City Dock



☐ Main Street



☐ United States Naval Academy





# Visual Preference Survey



Rate the places that **matter most to you** in your experience of the Annapolis historic district.  
1 (most important) to 12 (least important)



☐ Maryland State House



☐ Historic Museums / Cultural Centers



☐ Other \_\_\_\_\_



☐ Other \_\_\_\_\_







# Visual Preference Survey



Please rate which Annapolis streetscape or waterscape **matters** most to you.  
1 (most important) to 8 (least important)



☐ Market Space



☐ Main St. View to Church Circle



☐ Naval Academy Views



☐ City Dock from Market Slip (Ego Alley)







# Visual Preference Survey



Please rate which Annapolis streetscape or waterscape **matters most** to you.  
1 (most important) to 8 (least important)



☐ Narrow Streets & Alley Views

☐ Statehouse Views



☐ Church Circle Views

☐ Other \_\_\_\_\_



# Visual Preference Survey

*Thank you for taking the survey. If you'd be interested in entering the drawing and / or participating in a future focus group, Town Hall or project interview, please provide your name and contact information below. Turn your survey into the **Weather It Together** table. In addition, indicate your specific topic of interest for any future public meetings.*

Name: \_\_\_\_\_ Email: \_\_\_\_\_

Address: \_\_\_\_\_ City: \_\_\_\_\_ State: \_\_\_\_\_ Zip: \_\_\_\_\_

Business/Organization (if applicable): \_\_\_\_\_

Property Owner / Resident / Business in Ward #: \_\_\_\_\_

☐ Yes, I'd like to participate in the drawing

☐ Yes, I'd like to participate in future small group or larger public meetings on the following topics:

- ☐ Impact of climate and flooding events on my business
- ☐ Floodproofing residential properties
- ☐ Environmental impacts of climate change
- ☐ Protecting maritime assets against disasters
- ☐ Design assistance & financial incentives for mitigation measures





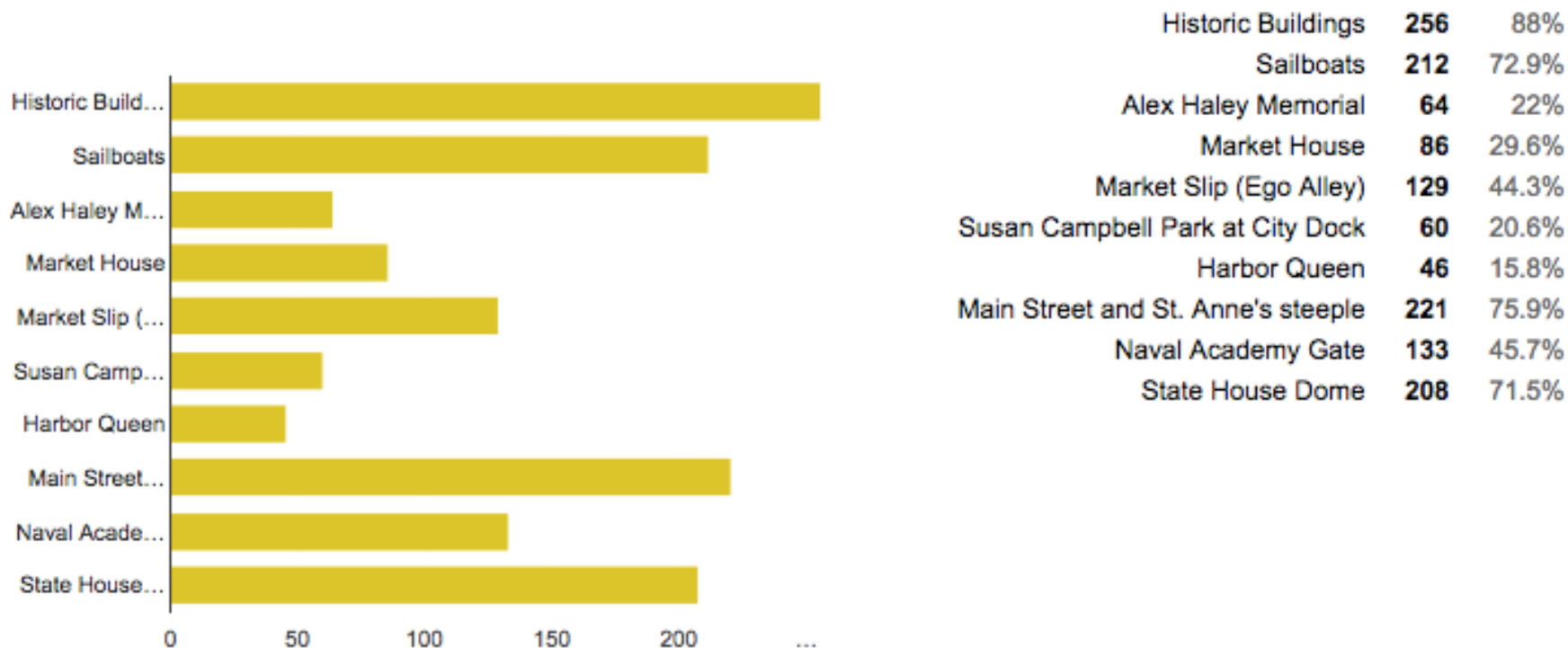
# *Weather It Together*

## *Visual Preference Survey – Online*

### *Preliminary Results*



**What visual elements define a visitor's experience in the historic district?**



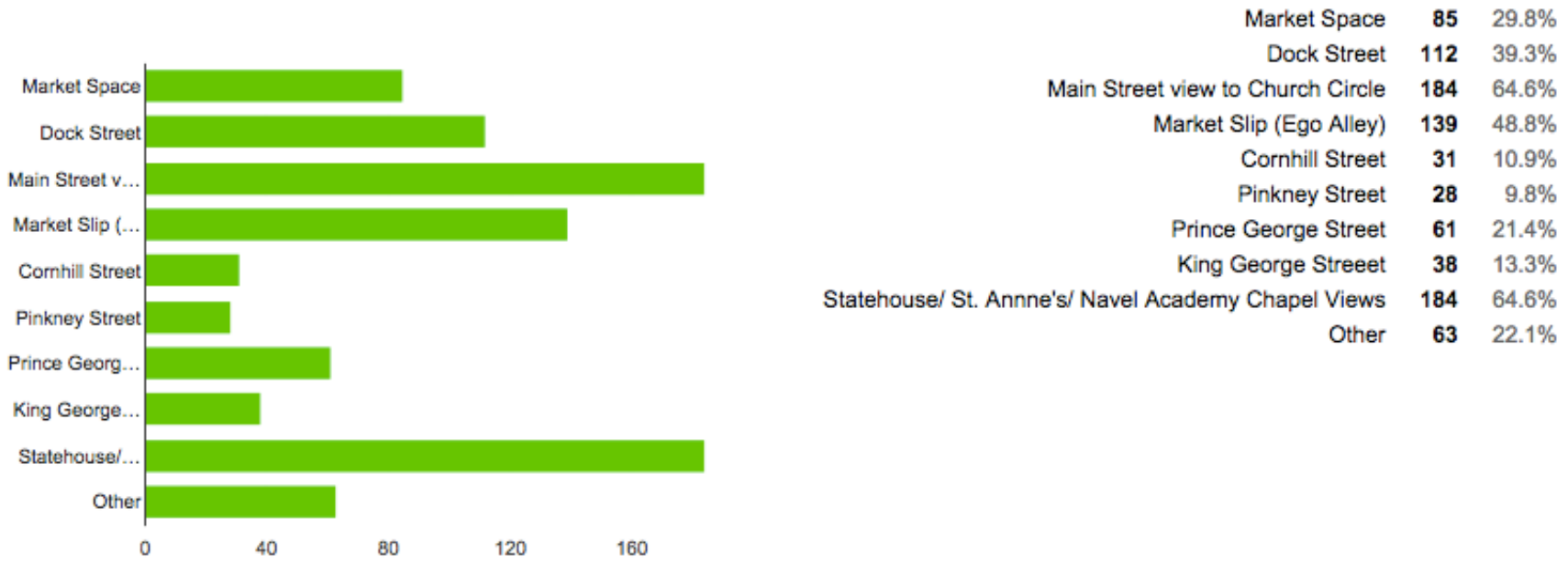


# Weather It Together

## Visual Preference Survey – Online Preliminary Results



Which streetscape or waterscape best exemplifies the historic district?





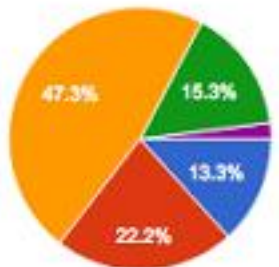


# *Weather It Together*

## *Visual Preference Survey – Online*

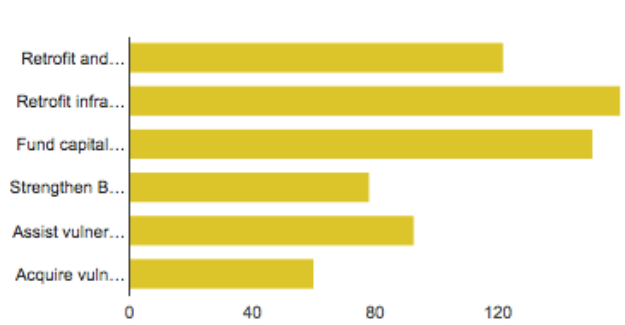
### *Preliminary Results*

**Who do you think has the primary responsibility for helping property owners during the first 12 hours after a disaster?**



Federal Government	27	13.4%
State Government	45	22.3%
Local Government	96	47.5%
The people in the area affected (myself, my neighbors)	31	15.3%
Other	4	2%

**What types of mitigation projects should the City of Annapolis focus on to reduce damage during hazards events in Annapolis?**



Retrofit and strengthen essential facilities in the floodplain area	122	63.2%
Retrofit infrastructure (roads, bridges, drainage facilities, water supply, wastewater)	160	82.9%
Fund capital projects (floodwalls, drainage improvements)	151	78.2%
Strengthen Building codes and regulations to include higher regulatory standards in hazards areas	78	40.4%
Assist vulnerable property owners with securing funding for mitigation	93	48.2%
Acquire vulnerable properties and maintain as open space owned by local, state, or federal government	60	31.1%



# *Weather It Together*

## *Visual Preference Survey – Online*

### *Preliminary Results*

Besides your own property, which are the five most important buildings or public spaces that need to be protected in preparation for a flooding or weather-related disaster?



The location right in front of the Market House, where the Alex Haley Memorial is located, matters the most to me, for its amazing historic resonance going back centuries -- for its function as the "town landing."





# *Weather It Together Visual Preference Survey – Online Preliminary Results*

I think the open space matters with an appropriate mix of retail and restaurants that are both historic and useful. We have a boat (second home) in Eastport and we are always walking or boating to downtown Annapolis. It is really one of the best locations on Chesapeake Bay. You don't have to go anywhere, because you are already there!

These places seem to define the downtown and the reason Annapolis is there. They connect the City to the water. The scale of the buildings is personal and welcoming. A visitor feels connected to the city and the city's heritage.

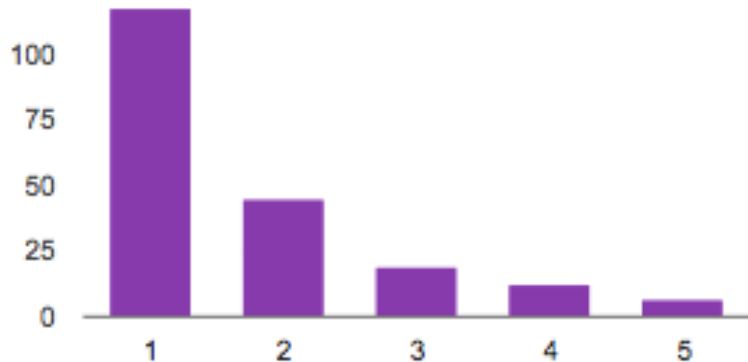
I realized how much these places mattered to me when Isabel hit. I have so many memories with my family as a child in this area, that when Isabel hit it was very hard to think we might not be able to create more memories here.

# ANNAPOLIS

## WEATHER IT TOGETHER

### *Protect Our Historic Seaport*

The city needs to start immediately to create a plan to address the flooding, natural hazard issues.



Strongly Agree: 1	118	58.7%
2	45	22.4%
3	19	9.5%
4	12	6%
Strongly Disagree: 5	7	3.5%



[www.Annapolis.gov/WeatherItTogether](http://www.Annapolis.gov/WeatherItTogether)